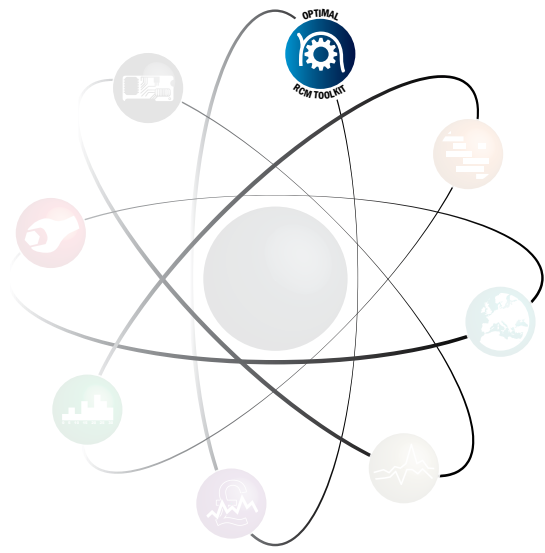


APPLICATIONS

RELIABILITY CENTERED MAINTENANCE



Reliability Centered Maintenance (RCM) is the 21st century, defensible, methodical and scientific approach to the establishment of safe optimum levels of maintenance. RCM also supports changes to operating procedures, training and the establishment of capital maintenance regimes and plans, which in turn, leads to increased cost effectiveness, equipment up time, and a greater understanding of the level of risk that an organisation is managing.

WHY RCM?

The traditional approach to maintenance planning by service and maintenance engineers applied the premise that it is better to have a preventive service and maintenance regime than one based on only repair when there is a failure.

However, history has proved time and time again that invasive (sometimes unnecessary) maintenance can introduce further failures. RCM uses a range of approaches, within a decision framework, to deliver the optimum maintenance strategy for complex, safety-critical assets, balancing risk, cost and environmental factors to extend 'through life expectancy'.

WHAT MAKES RCM DIFFERENT?

The RCM approach was driven by the need to improve aviation industry safety records in the 1960s and 1970s whilst managing increasing equipment complexity and costs. RCM also has its origins in a key study commissioned by the US DOD (carried out by Nowlan and Heap from United Airlines) in 1978.

Nolan and Heap found that the fundamental assumptions made by design and maintenance planners on the expected life of reliable service from components such as aero engines, undercarriage, navigation systems etc. were wrong in almost every specific example examined in a complex jet airliner. These findings created a paradigm shift in the understanding of failure management, including:

- A realisation that the vast majority of failures are not necessarily linked to the age of the asset
- The need to focus on managing the process of failure rather than trying to predict life expectancy
- A need to understand the differences between the user requirements of an asset compared with the design capability
- A need for an understanding of the management of the condition of an asset
- A strategy to link the levels of tolerable risk to maintenance strategy development

GETTING STARTED WITH RCM

Managers with responsibilities for asset performance, principally for reliability and availability, face a significant challenge in selecting the most appropriate technique in the face of several different failure types. The RCM Toolkit provides a structured decision support process that consists of the following steps:

- Define the maintenance problem and gather basic information
- Define the functions and desired performance standards for each item of equipment
- Define all the ways in which it can fail to deliver the required performance (functional failures)
- Establish the causes of failure (failure modes)
- Record what happens when each failure mode occurs (failure effects)
- Establish a strategy for dealing with each failure mode based on an assessment of failure consequences (protection which is not fail-safe, failures which endanger life or the environment, failures which affect the organisation's business objectives, failures that only involve the cost of repair)
- Assess the applicability of different types of failure prevention and establish task frequencies (condition-based maintenance tasks, scheduled overhaul tasks and scheduled discard tasks)

The RCM Toolkit provides a framework within a software business solution to help organisations develop an RCM strategy and collect the data for the management of complex and mission critical assets.

The RCM Toolkit delivers core RCM process support capability using the latest presentation technology. It supports the criteria for RCM set out in SAE JA1011. Customers also have the option to use the RCM Toolkit delivered through Software as a Service (SAAS).

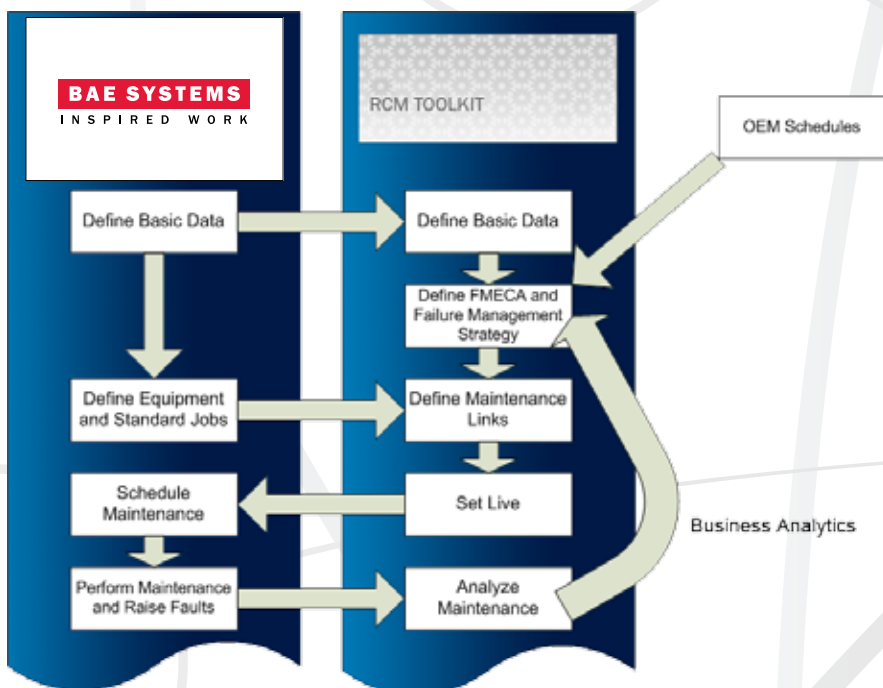
BAE SYSTEMS

INSPIRED WORK

RCM ENTERPRISE

The RCM Toolkit is capable of working in a stand-alone mode or as an integrated module to an ERP or CMMS. The RCM Toolkit exposes a secure web service, allowing it to easily interface with any ERP/CMMS.

The interface enables the toolkit to import basic data (such as measurement units), the equipment hierarchy and a list of maintenance task instructions from your ERP/CMMS. The toolkit is then used to perform an RCM analysis, providing a list of preventative and corrective maintenance, linking an equipment to a task instruction with a given interval. Once the analysis has been reviewed and set live, the interface will send the preventative and corrective maintenance to your ERP/CMMS, where it can be scheduled and managed.



Note: Some development must be undertaken to modify your ERP/CMMS to communicate with the RCM interface, but most modern ERPs/CMMSs provide strong interface support.

THE RCM TOOLKIT

- Provides an industry standard to define a maintenance programme
- Creates a cost-effective maintenance strategy to address dominant causes of equipment failure
- Ensures safety, environmental and operational failures are minimized
- Helps reduce over-maintenance acknowledges that the majority of failures are not age-related
- Results in a maintenance programme that focuses scarce economic resources on those items that would cause the most disruption if they were to fail